

**University of Maine System
Cumberland County
Portland, Maine
A-464-71-G-A**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #1**

After review of the air emissions license amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

1. The University of Maine System (UM-Portland) of Portland, Maine was issued Air Emission License A-464-71-F-R on December 3, 1999, permitting the operation of emission sources associated with their Portland campus
2. UM-Portland has requested an amendment to their license in order to:
 - a. Add three new boilers and one new emergency generator associated with a new Bio-Science addition.
 - b. Add two existing emergency generators not previously licensed.
 - c. Correct typographical errors to the equipment list in Air Emission License A-464-71-F-R.

B. Emission Equipment

UM-Portland is licensed to operate the following equipment:

Fuel Burning Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate</u>	<u>Fuel Type, % sulfur</u>	<u>Stack #</u>	<u>Location</u>
Boiler #1	11.2	74.7 gph	#6 fuel oil, 2.0%	1	30 Durham St.
Boiler #2	11.2	74.7 gph	#6 fuel oil, 2.0%	1	30 Durham St.
Boiler #3	16.8	112.0 gph	#6 fuel oil, 2.0%	1	30 Durham St.
Boiler #4	4.2	4078 scf/hr	Nat. Gas, negligible	2	645 Congress St.
Boilers #5, 6, 7	3.0 (total)	2913 scf/hr	Nat. Gas, negligible	3, 4, 5	310 Forest Ave.
Boiler #8	2.0	14.3 gph	#2 fuel oil, 0.5%	6	25 Bedford St.
Boiler #9	4.8	34.3 gph	#2 fuel oil, 0.5%	7	46 Bedford St.
Boiler #10	1.1	7.9 gph	#2 fuel oil, 0.5%	8	68 High St.
Boiler #11*	1.5	1456 scf/hr	Nat. Gas, negligible	9	66 Falmouth St.
Boilers #12* & 13*	2.0 (total)	1941 scf/hr	Nat. Gas, negligible	10, 11	66 Falmouth St.
Generator #1	0.66	4.8 gph	Diesel, 0.05%	12	96 Falmouth St.
Generator #2**	0.62	600 scf/hr	Nat. Gas, negligible	13	76 Falmouth St.
Generator #3**	2.88	21.0 gph	Diesel, 0.05%	14	310 Forest Ave.
Generator #4*	5.67	5505 scf/hr	Nat. Gas, negligible	15	66 Falmouth St.

*New equipment associated with the new Bio-Science Building.

** Existing equipment not previously licensed.

C. Application Classification

The modification of a minor source is considered a major modification based on whether or not expected emission increases exceed the “Significant Emission Levels” as given in Maine’s Air Regulations. The emission increases are determined by subtracting the current licensed emissions preceding the modification from the maximum future licensed allowed emissions, as follows:

<u>Pollutant</u>	<u>Current License (TPY)</u>	<u>Future License (TPY)</u>	<u>Net Change (TPY)</u>	<u>Sig. Level</u>
PM	5.7	6.3	+0.6	100
PM ₁₀	5.7	6.3	+0.6	100
SO ₂	49.6	49.6	0	100
NO _x	13.9	25.6	+11.7	100
CO	1.5	3.0	+1.5	100
VOC	0.2	0.9	+0.7	50

This modification is determined to be a minor modification and has been processed as such.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in Chapter 100 of the Department regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in Chapter 100 of the Air Regulations. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Boilers #11, #12, and #13

Boilers #11, #12, and #13 will provide heat and hot water to the new Bio-Science addition to the campus. All of these boilers will fire natural gas. UM-Portland has requested no increase in their annual fuel limit for natural gas.

Boilers #11, #12, and #13 all have heat inputs less than 10 MMBtu/hr and are therefore not subject to the New Source Performance Standards (NSPS) Subpart Dc for steam generating units greater than 10 MMBtu/hr manufactured after June 9, 1989.

A summary of the BACT analysis for Boiler #11 (1.5 MMBtu/hr) and Boilers #12 and #13 (2.0 MMBtu/hr total) is the following:

1. The total fuel use for Boilers #4, 5, 6, 7, 11, 12, and 13 shall not exceed 15,000,000 scf/year of natural gas, based on a 12 month rolling total.
2. PM and PM₁₀ emissions are based on data from similar natural gas fired boilers of this size and age.
3. NO_x, CO, and VOC emission limits are based upon AP-42 data dated 2/98.
4. Visible emissions from Boilers #11, 12, and 13 shall each not exceed 10% opacity on a 6-minute block average.

C. Generators

UM-Portland operates four back up emergency diesel generators. Generator #1 was previously licensed in Air Emission License A-464-71-F-R. Generators #2 and #3 are existing units that were overlooked in previous licensing. Generator #4 is a new unit being installed as part of the Bio-Science addition. Generators #2 and #4 fire natural gas and Generator #3 fires diesel fuel.

“Emergency” is defined in Chapter 100 and throughout this document as: “... any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology based emission limitation under the license, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.”

A summary of the BACT analysis for Generators #2, #3, and #4 is the following:

1. Generator #3 shall only fire diesel fuel with a sulfur content not to exceed 0.05% by weight.
2. The emergency generators shall each be limited to 500 hr/yr of operation based on a 12 month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours.
5. Chapter 106 regulates fuel sulfur content, however in this case a BACT analysis for SO₂ determined a more stringent limit of 0.05% was appropriate and shall be used.
6. Chapter 103 regulates PM from Generator #4.
3. The PM limits for Generators #2 and #3 and PM₁₀ limits are based on emissions from similar units.
4. NO_x, CO, and VOC emission limits for Generator #3 are based upon AP-42 data dated 10/96.
5. NO_x, CO, and VOC emission limits for Generators #2 and #4 are based on vendor supplied data.
6. Visible emissions from the generators shall each not exceed 20% opacity on a 6-minute block average, except for no more than 2 six-minute block averages in a continuous 3-hour period.

D. Annual Emission Restrictions

UM-Portland shall be restricted to the following annual emissions, based on a 12 month rolling total:

Total Allowable Annual Emission for the Facility
(used to calculate the annual license fee)

<u>Pollutant</u>	<u>Tons/Year</u>
PM	6.3
PM ₁₀	6.3
SO ₂	49.6
NO _x	25.6
CO	3.0
VOC	0.9

III.AMBIENT AIR QUALITY ANALYSIS

According to the Maine Regulations Chapter 115, the level of air quality analyses required for a minor new source shall be determined on a case-by case basis.

Based on the information available in the file, and the similarity to existing sources, Maine Ambient Air Quality Standards (MAAQS) will not be violated by this source.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-464-71-G-A subject to the conditions found in Air Emission License A-464-71-F-R and in the following conditions:

The following shall replace Condition (17) of Air Emission License A-464-71-F-R:

- (17) Boilers #4, 5, 6, 7, 11, 12, and 13
- A. Total fuel use for Boilers #4, 5, 6, 7, 11, 12, and 13 shall not exceed 15 million scf/year of natural gas. Compliance shall be based on fuel receipts from the supplier showing the quantity of fuel used. Records of annual fuel use shall be kept on a 12-month rolling total basis.
- B. Emissions shall not exceed the following:

Equipment		PM	PM ₁₀	NO _x	CO	VOC
Boiler #4	lb/MMBtu	0.12	-	-	-	-
	lb/hr	0.50	0.50	0.41	0.34	0.02
Boilers #5, 6, 7 (total)	lb/MMBtu	0.12	-	-	-	-
	lb/hr	0.36	0.36	0.29	0.24	0.02
Boiler #11	lb/hr	0.08	0.08	0.15	0.12	0.01
Boilers #12 & #13 (total)	lb/hr	0.10	0.10	0.19	0.16	0.01

- C. Visible emissions from Boilers #4, 5, 6, 7, 11, 12, and 13 shall each not exceed 10% opacity on a 6-minute block average.

The following shall replace Condition (19) of Air Emission License A-464-71-F-R:

- (19) Emergency Generators
- A. UM-Portland shall limit each emergency generator to 500 hr/yr of operation (based on a 12 month rolling total). An hour meter shall be maintained and operated on the Generators #1, 2, 3, and 4.

- B. A log documenting the dates, times, and reason of operation for the generators shall be kept.
- C. Generators #1 and #3 shall fire diesel fuel with a sulfur limit not to exceed 0.05% by weight. Fuel records, including percent sulfur, shall be maintained.
- D. Emissions shall not exceed the following:

Equipment		PM	PM ₁₀	SO ₂	NO _x	CO	VOC
Generator #1	lb/hr	0.08	0.05	0.03	2.91	0.63	0.23
Generator #2	lb/hr	0.07	0.03	-	4.12	0.28	0.27
Generator #3	lb/hr	0.35	0.23	0.14	12.70	2.74	1.01
Generator #4	lb/MMBtu	0.12	-	-	-	-	-
	lb/hr	0.68	0.28	-	28.55	1.97	1.84

- E. Visible emissions from the Generators #1, 2, 3, and 4 shall each not exceed 20% opacity on a 6-minute block average, except for no more than 2 six-minute block averages in a continuous 3-hour period.

Condition (20) of Air Emission License A-464-71-F-R is deleted.

The following are new Conditions

- (22) UM-Portland shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (Title 38 MRSA §605-C).
- (23) **Annual Emission Statement**
In accordance with MEDEP Chapter 137, the licensee shall annually report to the Department the information necessary to accurately update the State's emission inventory by means of:
 - 1) A computer program and accompanying instructions supplied by the Department;
or
 - 2) A written emission statement containing the information required in MEDEP Chapter 137.

Reports and questions should be directed to:

Attn: Criteria Emission Inventory Coordinator
Maine DEP
Bureau of Air Quality
17 State House Station
Augusta, ME 04333-0017

Phone: (207) 287-2437

The emission statement must be submitted by September 1.

- (24) UM-Portland shall pay the annual air emission license fee within 30 days of September 30th of each year. Pursuant to 38 M.R.S.A. Section 353-A, failure to pay this annual fee in the stated timeframe is sufficient grounds for revocation of the license under 38 M.R.S.A. Section 341-D, Subsection 3.
- (25) This amendment shall expire concurrently with Air Emission License A-464-71-F-R.

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2003.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAWN R. GALLAGHER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 1/16/03

Date of application acceptance: 1/16/03

Date filed with the Board of Environmental Protection: _____

This Order prepared by Lynn Ross, Bureau of Air Quality.